

JAPANESE

[JP,09-268012,A]

CLAIMS DETAILED DESCRIPTION TECHNICAL  
FIELD PRIOR ART EFFECT OF THE INVENTION  
TECHNICAL PROBLEM MEANS EXAMPLE  
DESCRIPTION OF DRAWINGS DRAWINGS

[Translation done.]

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## DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

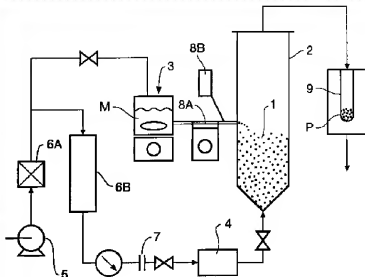
[Field of the Invention]This invention relates to the method of manufacturing impalpable powder slaked lime whose reactivity it is detailed and is high using the fluid bed.

[0002]

[Description of the Prior Art]In various uses of slaked lime, it was detailed and the reactant high thing was required more often. For example, what is used for the hydrogen chloride gas removal in a combustion gas, especially the gas from an incinerator represents it. in removal of the SOx by which it is generated when burning fuel like coal or petroleum -- impalpable powder -- high -- a activity product is more useful.

[0003]Artificers inquire that the method of manufacturing impalpable powder-like quicklime should be established, Detailed limestone was supplied to the fluid bed which consists of particles of the inactive substance heated by the elevated temperature, and it found out that this purpose could be attained by performing temporary-quenching

Drawing selection Representative draw



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reaction  $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$  there, and already indicated (JP,7-89749,A). It checked that impalpable powder-like quicklime was obtained too by replacing with limestone, and using slaked lime as a raw material supplied to the fluid bed, therefore performing not decarboxylation but dehydration  $\text{Ca}(\text{OH})_2 \rightarrow \text{CaO} + \text{H}_2\text{O}$  by subsequent research.

It turned out that not only solid slaked lime but the thing made into water slurry can be used as this raw material slaked lime.

[0004]It knew that impalpable powder-like slaked lime would be obtained by advancing research furthermore, supplying the slurry of slaked lime to the fluid bed, and making it dry there.

[0005]

[Problem(s) to be Solved by the Invention]The purpose of this invention is to provide the method of manufacturing impalpable powder slaked lime of high activity of having utilized the above-mentioned artificers' knowledge, having used slaked lime slurry as the raw material, and having used the fluid bed.

[0006]

[Means for Solving the Problem]A manufacturing method of impalpable powder slaked lime using the fluid bed of this invention, It is formed by mobilizing medium particles of an inactive substance with fluidizing gas warmed or heated, Water slurry which obtained to it powdered slaked lime whose particle size is -50micrometer by distributing water to the fluid bed maintained at constant temperature of 30-300 \*\* is supplied, Powder of detailed slaked lime is made to form by desiccation of water slurry in the surface of medium particles, slaked lime powder which seceded from the surface of medium particles is put on a flow of fluidizing gas, and is taken out, and it consists of collecting by \*\* and mind separating mechanism.

[0007]

[Embodiment of the Invention]As medium particles which form the fluid bed, a size range is 400-1500 micrometers preferably, and uses 100-1500 micrometers of those to which particle diameter is comparatively equal and things with the particle size distribution by which it at least 90% of specifically goes into less than \*\*50% of mean particle diameter. By it, formation of the fluid bed and control become easy.

[0008]The substance which constitutes medium particles is thermally stable, and if it does not react to slaked lime and a steam, it can be chosen arbitrarily. In practice, sand, a silica sand, alumina powder, etc. are preferred.

[0009]It must be the temperature which can maintain the medium particles of the fluid bed to a temperature of a

maximum of 300 \*\* required to dry slaked lime, and, as for fluidizing gas, what (below 0.03vol.% ) CO<sub>2</sub> is not

contained for on parenchyma is required. What is necessary is just to use air, heating practically. Although temperature is useful for desiccation from the hit over 30 \*\*, for promotion, it is desirable that it is not less than 100 \*\*. Since some slaked lime may dry and quicklime may be produced when it exceeds 300 \*\* and 350 \*\* is approached, it operates below 300 \*\*.

[0010]As for mobilization of medium particles, it is desirable that it is in the flow state where the opportunity for it to be agitated violently and for both particles to collide increases so that grain refining may be carried out, when slaked lime adhering to the particle surface exfoliates easily, and it is exfoliation. The power of making the flowing medium particles mobilizing realizes this by supplying fluidizing gas so that not only a perpendicular direction but horizontal component of a force may become quite large.

[0011]It is \*\*\*\*\* at \*\*\*\*\* separating mechanism from a cyclone in ordinary use, bag filter, and electrical dust precipitator -- a thing -- one sort -- or what is necessary is just to use two or more sorts, combining Although the cyclone is efficient, since microscopic powder cannot be caught, its composition which combined the bag filter or the electrical dust precipitator with this is practical.

[0012]It distributes to the whole fluid bed, adhering to the surface of medium particles and being mobilized, and the slaked lime slurry supplied to the fluid bed receives heat required for desiccation from medium particles and fluidizing gas there. As a result, desiccation progresses promptly.

[0013]

[Example]The experimental device of composition of being shown in [drawing 1](#) was assembled. The principal part of a device comprises the fluidized-drying tower (2) which forms the fluid bed (1) of medium particles in an inside, and the slurry feed machine (3) for supplying the slurry (M) of slaked lime to this fluid bed. A fluidized-drying tower (2) is a tube 10 cm in inside diameter, and is carrying out cone shape which the pars basilaris ossis occipitalis opened in angle of 45 degrees. It is pressurized by a compressor (5), and passes along an oil filter (6A), a silica gel tower (6B), and an orifice meter (7) to the pars basilaris ossis occipitalis, the air further heated with the heater (4) is supplied to it, and medium particles are made to flow. A fluidizing gas style is led to a bag filter (9), separates impalpable powder slaked lime (M) of a product there, and is emitted to the exterior. It is the structure of giving vibration by vibrator (8B) in order to prevent a blockade within a pipe while a slurry feed machine agitates the slurry in a container with an

electromagnetism stirrer, keeps slaked lime concentration constant and sends this with a slurry pump (8A).  
 [0014][Example 1] With the mean particle diameter of 460 micrometers, 90% used the silica sand which has the particle size distribution which exists to the less than \*\*50% as medium particles, and supplied the 0.5 kg in the fluidized-drying tower (2). Air was heated through the heater, what was 130 \*\* was circulated at 0.8 m/sec in hollow cylinder reference gas speed, and medium particles were made to mobilize. There, what (mean particle diameter of 1.5 micrometers) was made into the slaked lime slurry of water content 1.5 (kg water / kg dry solid) was supplied at the rate of 80 g/hr (dry solid standard) from the slurry feed machine (3). The slaked lime impalpable powder formed with the bag filter (9) was caught at the rate of almost tales doses of 80 g/hr. The temperature of the fluid bed was 105 \*\* in the stationary state. Product slaked lime was 15 micrometers in mean particle diameter.

[0015][Example 2] As medium particles, river sand with the particle size distribution to which 90% has mean particle diameter to the less than \*\*50% at 600 micrometers was used, and the 0.5 kg was supplied to the fluidized-drying tower. The air heated in temperature of 130 \*\* was sent like Example 1 at 0.6 m/sec in hollow cylinder reference gas speed, the fluid bed was formed, and what (mean particle diameter of 2.5 micrometers) was made into the slaked lime slurry of water content 2.0 (kg water / the end of kg dried powder) was supplied there at the rate of 200g / hr. The mean particle diameter of the powder of the product slaked lime caught by the bag filter was 2.5 micrometers.

[0016]

[Effect of the Invention]If impalpable powder slaked lime is manufactured from the slurry of slaked lime in accordance with the method of this invention, the particle size which the raw material had will be maintained mostly, and slaked lime of a detailed particle size by which minuteness making was carried out further will be obtained. Reaction efficiency high [ such detailed slaked lime powder has high activity, and ] when it is used for removal of the toxic substance in gas like HCl or SOx is shown.

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